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08/820,608 03/19/97 SUNAGA

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EXAMINER

LM61/1120

JOHN J CHRYSTAL
LADAS AND PARRY
224 SOUTH MICHIGAN AVENUE
CHICAGO IL 60604

ART WANDERFLY NUMBER

2732

DATE MAILED: 11/20/97

This is a communication from the examiner in charge of your application
COMMISSIONER OF PATENTS AND TRADEMARKS

☐ This application has been examined ☐ Responsive to communication filed on _____ ☐ This action is made final.

A shortened statutory period for response to this action is set to expire 3 month(s), _____ days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

- | | |
|---|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited by Examiner, PTO-892. | 2. <input checked="" type="checkbox"/> Notice of Draftsman's Patent Drawing Review, PTO-946. |
| 3. <input type="checkbox"/> Notice of Art Cited by Applicant, PTO-1419. | 4. <input type="checkbox"/> Notice of Informal Patent Application, PTO-152. |
| 5. <input type="checkbox"/> Information on How to Effect Drawing Changes, PTO-1474. | 6. <input type="checkbox"/> _____ |

Part II SUMMARY OF ACTION

1. ☒ Claims 1-17 are pending in the application.
Of the above, claims _____ are withdrawn from consideration.
2. ☐ Claims _____ have been cancelled.
3. ☐ Claims _____ are allowed.
4. ☒ Claims 1-17 are rejected.
5. ☐ Claims _____ are objected to.
6. ☐ Claims _____ are subject to restriction or election requirement.
7. ☐ This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.
8. ☐ Formal drawings are required in response to this Office action.
9. ☐ The corrected or substitute drawings have been received on _____. Under 37 C.F.R. 1.84 these drawings are ☐ acceptable; ☐ not acceptable (see explanation or Notice of Draftsman's Patent Drawing Review, PTO-948).
10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on _____, has (have) been ☐ approved by the examiner; ☐ disapproved by the examiner (see explanation).
11. ☐ The proposed drawing correction, filed _____, has been ☐ approved; ☐ disapproved (see explanation).
12. ☐ Acknowledgement is made of the claim for priority under 35 U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. _____; filed on _____.
13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.
14. ☐ Other

EXAMINER'S ACTION

Art Unit: 2603

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

2. Claim 1-5 and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Nakano et al.(Pat.# 5,559,789).

With respect to claim 1, Nakano teaches a CDMA transmitter comprising a pilot channel transmit unit which intermittently transmits a pilot signal(col 3 lines 28-35, see Fig.3) and traffic channel which transmit data signals(see Fig 2.)

Claim 2 is rejected because Nakano teaches a pilot data generator and first modulator(see Fig. 2 @ 15), a second modulator(see Fig. 2 @ 16) and a timing generator signal applied to the pilot data(inherent in pilot burst transmission, col. 3 line 30-35).

With respect to claim 3, Nakano teaches a transmitter wherein the pilot signal has a period shorter than the interval at which the pilot signal is intermittently sent(see Fig. 3@26).

Art Unit: 2603

With respect to claim 4, Nakano teaches a CDMA receiver comprising a pilot channel receive unit(see Fig. 2 @ 6), a timing for traffic channel demodulation and a traffic channel receive unit which demodulates at the detected pilot signal timing. (see Fig. 2@ 6 & 21).

Claim 5 is rejected because Nakano teaches a data channel and pilot channel despreading circuits.(see Fig. 2@ 6 & 18).

Claim 13 is rejected because the steps recited are achieved by the apparatus claimed in claims 1 and 4.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakano in view of Marchetto et al.(Pat #5,414,734) Nakano does not teach an estimating unit which estimates the states of path. Marchetto teaches a receiver circuitry that uses the pilot signal to demodulate data affected by fading and interference and compensates for the undesired effects.(see Fig 3@ 96, 100, 92 and 104 also see abstract). It would have been obvious to one of ordinary skill in the art to incorporate this circuitry in Nakano for the purpose of enabling channel response estimates to be made. The motivation would be to compensate for multi-path interference.

Art Unit: 2603

5. Claims 8-12, 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakano in view of Khan et al. (Pat#5,646,632)

Claim 8 is rejected because Nakano teaches the elements claimed in applicant's receiver and transmitter. (Refer to the reasons for the rejection of claims 1 and 2 above). What Nakano does not teach is the use of a plurality of transmitters and receivers. Khan teaches a plurality of transmitters and receivers in a CDMA communications system. It would have been obvious to one of ordinary skill in the art that a CDMA communication system would comprise a plurality of transmitters and receivers distributed over a wide geographic area (cells), such that frequency reuse and handoff capabilities are utilized. The motivation here is to enable users to communicate without interruption over a wide geographic area. (cells)

Claims 9 and 14 are rejected because though Nakano does not teach the transmission of pilot signals for a plurality of base stations, Khan teaches pilot signal transmission in staggered fashion from a plurality of stations. It would have been obvious to one of ordinary skill in the art that in order for multiple base stations to transmit the same (PN coded) pilot signal intermittently, time offsets would have to be introduced in order for a receiver to discriminate between pilot signals from different base stations. The motivation here is to have all base stations transmit on the same frequency. (CDMA)

Claims 10-12 and 15-17 are rejected because even though Kahn does not specifically teach the different combinations of offsets, he does teach a means for transmitting pilot signals such that the different base station pilot signals are offset in time by integral multiples of a fixed

Art Unit: 2603

duration.(col. 2 lines 30-60). It would have been obvious to one of ordinary skill in the art that pilot signals intermittently transmitted could also be transmitted in a staggered fashion with different timing offsets. The motivation would be to allow for propagation delay times of pilot signals from each base station.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth Vanderpuye whose telephone number is (703) 308-7828. The examiner can normally be reached on M-F from 6:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doug Olms, can be reached on (703) 305-4703 . The fax phone number for this Group is (703) 305-9509.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-3900.

Benedict V. Safourek

BENEDICT V. SAFOUREK
PRIMARY EXAMINER
GROUP 263

Kenneth Vanderpuye

Nov 1, 1997